

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) A method of providing a defined quality of service in a packet switched communication system having a plurality of interconnected nodes for forwarding of data packets, wherein the plurality of interconnected nodes includes an edge node and a plurality of interior nodes, wherein the edge node connects to user equipment or to a further communication system, processes data packets having a data field specifying a handling of the packets, and forwards the processed data packets to the interior nodes, wherein the plurality of interior nodes form a core network through which data packets received from the edge node are forwarded toward a destination, said method comprising:

connecting the edge node to a data base that contains a user subscription for an identified user specifying a quality of service for the identified user;

providing the edge node with quality parameters from the identified user's subscription;

receiving in the edge node, a data packet for the identified user, said packet being received on a first protocol layer;

processing in the edge node, [[a]] the received data packet for the identified user by setting the data field specifying the handling of the packet according to the quality parameters from the identified user's subscription;

encapsulating the incoming data packet with the processed data field into a data packet on a lower protocol layer for the routing of the data packet; and

forwarding the processed data packets by the interior nodes in the core network by performing a differentiated handling of the packets according to the data field set by the edge node, wherein the interior nodes evaluate the data field at the lower layer and route the packets according to the quality parameters specified in the data field.

2. (Previously Presented) The method according to claim 1, wherein the step of processing the data packet in the edge node includes changing the data field from a previously specified quality of service to a quality of service according to the quality parameters from the identified user's subscription.

3. (Previously Presented) The method according to claim 2, wherein the data packets are processed according to a protocol stack, and the step of processing the data packet in the edge node includes setting the data field according to information specified on a layer in the protocol stack of the edge node that is different from the layer evaluated by the interior nodes for the handling of the packets.

4. (Previously Presented) The method according to claim 2, wherein the data field is changed in response to a traffic load in the communication system.

5. (Previously Presented) The method according to claim 1, wherein the step of connecting the edge node to a data base includes connecting the edge node to a second node that connects to the data base, wherein the quality parameters from the identified user's subscription are forwarded from the second node to the edge node.

6. (Previously Presented) The method according to claim 1, wherein the data packets are internet protocol packets and the data field is the differentiated services field in the internet protocol header.

7. (Previously Presented) The method according to claim 6, wherein the step of setting the data field specifying the handling of the packet according to the quality parameters from the identified user's subscription includes setting unspecified bits in the differentiated services field according to the identified user's subscription, wherein the interior nodes handle the packet according to the unspecified bits.

8. (Previously Presented) The method according to claim 6, wherein the step of setting the data field specifying the handling of the packet according to the quality parameters from the identified user's subscription includes setting a plurality of bits that specify per hop behavior according to the identified user's subscription.

9. (Previously Presented) The method according to claim 1, wherein said data base is a location register.

10. (Previously Presented) The method according to claim 1, wherein each of the plurality of interior nodes that receives the data packet evaluates the data field if the traffic load is above a threshold value.

11. (Currently Amended) An edge node in a packet switched communication system having a plurality of interconnected interior nodes for forwarding of data packets through a core network, wherein the edge node processes the data packets and is connectable to at least one of the interconnected interior nodes and to user equipment or to a further communication system external to the core network, and the packets include a data field that specifies a handling of the packets in the interconnected interior nodes, said edge node comprising:

an interface for accessing a data base holding user subscriptions and retrieving parameters specifying a quality of service for an identified user;

means for receiving an incoming data packet on a first protocol layer;

means for determining that [[an]] the incoming packet is associated with the identified user; ~~and~~

processing means for setting the data field of the incoming packet to specify the handling of the incoming packet by the interconnected interior nodes according to the quality parameters from the identified user's subscription; and

means for encapsulating the incoming data packet with the processed data field into a data packet on a lower protocol layer for the routing of the data packet and forwarding the data packet to the interconnected interior nodes;

wherein the plurality of interconnected interior nodes perform a differentiated handling of the packets according to the data field set by the edge node, wherein the interior nodes evaluate the data field at the lower layer and route the packets according to the quality parameters specified in the data field.

12. (Currently Amended) The edge node according to claim 11, further comprising means for processing data packets according to a protocol stack, wherein the processing means evaluates data from a first layer in the protocol stack and sets the data field at a second protocol layer different from the first layer, which is evaluated by the plurality of interconnected interior nodes for the handling of the packets, according to the data evaluated from the first protocol layer.

13. (Previously Presented) The edge node according to claim 11, wherein the edge node is a serving GPRS support node (SGSN) or a gateway GPRS support node (GGSN).

14. (Previously Presented) The edge node according to claim 13, wherein the edge node includes a control node and a node for processing packets.

15. (Previously Presented) The edge node according to claim 11, wherein the edge node is a radio network controller or an adapter in a user equipment.

16. (Currently Amended) An interior node in a packet switched core network having a plurality of interconnected interior nodes for forwarding of internet protocol data packets that include a differentiated services data field in the internet protocol header specifying a handling of the packets, wherein the differentiated services data field includes a number of unspecified bits, said node comprising:

means for receiving the data packets from an edge node that sets unspecified bits in the differentiated services data field to indicate a quality of service for the data packets; and

processing means for performing a differentiated handling of the packets according to the differentiated services data field, said processing means including:

means for determining whether the interior node has sufficient resources to handle a received data packet utilizing a highest quality of service level;

means for forwarding the received data packets utilizing the highest quality of service level without evaluating the unspecified bits in the differentiated services data field, responsive to a determination that the interior node has sufficient resources to handle the received data packet utilizing the highest quality of service level;

means for evaluating the unspecified bits in the differentiated services data field; ~~and means for handling~~ and forwarding the packets according to the unspecified bits, responsive to a determination that the interior node does not have sufficient resources to handle the received data packet utilizing the highest quality of service level.

17. (Previously Presented) The interior node according to claim 16, further comprising means for measuring a traffic load, wherein the unspecified bits are evaluated only if the traffic load is above a threshold value.

18. (Currently Amended) A program unit on a data carrier or loadable into an edge node in a packet switched communication system, wherein the edge node provides connections and processes packets sent between user equipment or a further communication system and interior nodes in a core network which perform a differentiated handling of the packets according to a data field in the data packets, wherein the program unit comprises:

means for obtaining from a user subscription, parameters for an identified user served by the edge node, said parameters specifying a quality of service for the identified user;

means for receiving an incoming data packet on a first protocol layer;

means for determining that ~~[[an]]~~ the incoming packet is associated with the identified user;

means for processing the incoming data packet by setting the data field in the incoming packet according to the parameters for the identified user; and

means for encapsulating the incoming data packet with the processed data field into a data packet on a lower protocol layer for the routing of the data packet and forwarding the data packet to the interconnected interior nodes; and

means for forwarding the processed data packet to an interior node in the core network;

whereby the program unit causes the interior node to perform a differentiated handling of the data packet according to the data field set by the program unit, wherein the interior nodes evaluate the data field at the lower layer and route the packets according to the quality parameters specified in the data field.

19-20. (Canceled)

21. (New) A method of providing a defined quality of service in a packet switched communication system having a plurality of interconnected nodes for forwarding of data packets, wherein the plurality of interconnected nodes includes an edge node and a plurality of interior nodes, wherein the edge node connects to user equipment or to a further communication system, processes data packets having a data field specifying a handling of the packets, and forwards the processed data packets to the interior nodes, wherein the plurality of interior nodes form a core network through which data packets received from the edge node are forwarded toward a destination, said method comprising:

connecting the edge node to a data base that contains a user subscription for an identified user specifying a quality of service for the identified user;

providing the edge node with quality parameters from the identified user's subscription;

processing in the edge node, a data packet for the identified user by setting the data field specifying the handling of the packet according to the quality parameters from the identified user's subscription;

forwarding the processed data packets from the edge node to the interior nodes;

determining by each interior node whether the interior node has sufficient resources to handle a received data packet utilizing a highest quality of service level;

if the interior node has sufficient resources, forwarding the received data packet utilizing the highest quality of service level without evaluating the data field in the data packet specifying the handling of the packet; and

if the interior node does not have sufficient resources, evaluating the data field in the data packet specifying the handling of the packet, and forwarding the evaluated data packet by performing a differentiated handling of the packets according to the data field set by the edge node.

22. (New) An interior node in a packet switched core network having a plurality of interconnected interior nodes for forwarding of internet protocol data packets that include a differentiated services data field in the internet protocol header specifying a handling of the packets, wherein the differentiated services data field includes a number of unspecified bits, said node comprising:

means for receiving the data packets from an edge node that sets unspecified bits in the differentiated services data field to indicate a quality of service for the data packets; and

processing means for performing a differentiated handling of the packets according to the differentiated services data field, said processing means including:

means for determining whether the interior node has sufficient resources to handle a received data packet utilizing a highest quality of service level;

means for forwarding the received data packets utilizing the highest quality of service level without evaluating the unspecified bits in the differentiated services data field, responsive to a determination that the interior node has sufficient resources to handle the received data packet utilizing the highest quality of service level;

means for evaluating the unspecified bits in the differentiated services data field and forwarding the packets according to the unspecified bits, responsive to a determination that the interior node does not have sufficient resources to handle the received data packet utilizing the highest quality of service level.

23. (New) A system for providing an identified user with a defined quality of service in a packet switched communication network having a plurality of interconnected nodes for forwarding of data packets, said system comprising:

a data base that contains a user subscription specifying a quality of service for the identified user;

an edge node connected to user equipment, the data base, and at least one interior node in the network, said edge node comprising:

means for receiving from the data base, quality of service parameters from the identified user's subscription;

means for processing a data packet for the identified user by setting a data field specifying the handling of the packet according to the quality parameters from the identified user's subscription; and

means for forwarding the processed data packets from the edge node to the interior nodes;

wherein each of the plurality of interior nodes comprises:

means for determining whether the interior node has sufficient resources to handle a received data packet utilizing a highest quality of service level; and

packet forwarding means for forwarding data packets received from the edge node toward a destination, said packet forwarding means being adapted to:

forward the received data packet utilizing the highest quality of service level without evaluating the data field in the data packet specifying the handling of the packet, responsive to a determination that the interior node has sufficient resources to handle the received data packet utilizing the highest quality of service level; and

evaluate the data field in the data packet specifying the handling of the packet, and forward the evaluated data packet by performing a differentiated handling of the packets according to the data field set by the edge node, responsive to a determination that the interior node does not have sufficient resources to handle the received data packet utilizing the highest quality of service level.